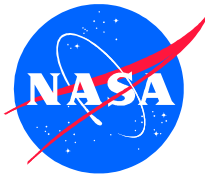


MicroNewton Thruster (MNT)

Busek Co. Inc.
Natick, MA



INNOVATION

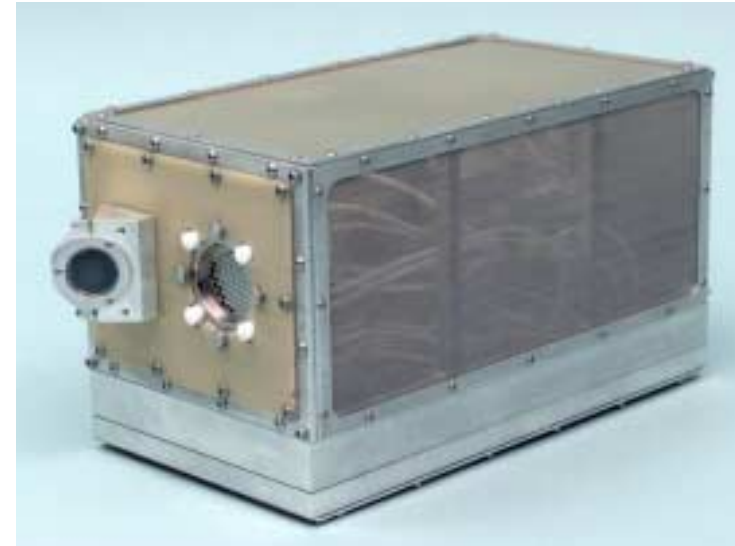
A stable and controllable microNewton colloid thruster that generates and accelerates a stream of nanometer-size charged droplets

ACCOMPLISHMENTS

- ◆ Demonstrated the first prototype of the MNT system with the assistance of Massachusetts Institute of Technology and Yale University
- ◆ First use of the carbon nanotube (CNT) based electron field emission (FE) neutralizer in electric propulsion
- ◆ Demonstration of extremely low noise thrust, of the order of 10^{-8} Newton, feed system with no moving parts and the CNT FE neutralizer

COMMERCIALIZATION

- ◆ Busek was selected to provide a set of microNewton thrusters for the Space Technology 7 project (ST7). Busek will receive \$10M for this effort
- ◆ The space market for the MNT's could reach several tens of millions of dollars over the next decade



First prototype 20 microNewton colloid thruster system which includes enough propellant to operate for 3000 hours

GOVERNMENT/SCIENCE APPLICATIONS

- ◆ To fly on the NASA New Millennium Space Technology Demonstration Mission (ST7)
- ◆ The MNTs will enable future scientific missions such as Laser Interferometer Space Antenna (LISA) gravitational wave observatory and the Micro-Arcsecond X-ray Imaging Mission (MAXIM) x-ray interferometer